

Application No.: 10/064,392
Amendment in Response to Restr. Reqmt

PATENT
Page 2 of 5

Amendment to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims

1. (Original) A diffusion-based method for detecting the activity of a bio/chemical species, the method comprising:
 - supplying a bio/chemical species to a finite volume diffusion channel, the finite volume diffusion channel comprising a transport axis;
 - supplying a reactive constituent in fluid communication to the finite volume diffusion channel, wherein the reactive constituent is known, or suspected of being reactive to the bio/chemical species;
 - detecting the presence or absence of a diffusion gradient occurring between the bio/chemical species and the reactive constituent; and
 - correlating the presence or absence of the diffusion gradient to the presence or absence of activity of the bio/chemical species.
2. (Original) The method of claim 1, wherein supplying a bio/chemical species to the finite volume diffusion channel comprises supplying a first concentration of the bio/chemical species to the finite volume diffusion channel, and wherein supplying a reactive constituent comprises supplying a second concentration of the bio/chemical species to the finite volume diffusion channel.
3. (Original) The method of claim 1, wherein supplying a bio/chemical species to the diffusion channel comprises supplying a population of cells to the finite volume diffusion channel, and wherein supplying a reactive constituent comprises supplying an ionic species to the finite volume diffusion channel.
4. (Original) The method of claim 1, wherein supplying a bio/chemical species to the diffusion channel comprises supplying a population of cells to the finite volume diffusion

Application No.: 10/064,392
Amendment in Response to Restr. Reqmt

PATENT
Page 3 of 5

channel, and wherein supplying a reactive constituent comprises supplying small molecules intended for therapeutic purposes to the finite volume diffusion channel.

5. (Original) The method of claim 1, wherein supplying a bio/chemical species to the finite volume diffusion channel comprises depositing the bio/chemical species within the finite volume diffusion channel.

6. (Original) The method of claim 1, wherein supplying a reactive constituent to the finite volume diffusion channel comprises depositing the reactive constituent within the finite volume diffusion channel.

7. (Original) The method of claim 1, wherein detecting a diffusion response comprises:
 positioning first and second measurement probes at respective first and second locations along the finite volume diffusion channel; and
 measuring an optical or electrical parameter at the first and second measurement probes; and
 detecting a difference in the measured optical or electrical parameter.

8. (Original) A diffusion-based method for monitoring the activity of a bio/chemical species, the method comprising:
 supplying the bio/chemical species to a finite volume diffusion channel, the finite volume diffusion channel comprising a transport axis;
 supplying a reactive constituent to the finite volume diffusion channel, wherein the reactive constituent is known or suspect of being reactive to the bio/chemical species;
 measuring the diffusion rate of the bio/chemical species or the reactive constituent along the transport axis; and
 correlating the diffusion rate of the bio/chemical species or the reactive constituent to activity of the bio/chemical species.

Application No.: 10/064,392
Amendment in Response to Restr. Reqmt

PATENT
Page 4 of 5

9. (Original) The method of claim 8, wherein supplying a bio/chemical species to the finite volume diffusion channel comprises depositing the bio/chemical species within the finite volume diffusion channel.

10. (Original) The method of claim 8, wherein supplying a reactive constituent to the finite volume diffusion channel comprises depositing the reactive constituent within the finite volume diffusion channel.

11. (Original) The method of claim 8, wherein supplying a bio/chemical species to the diffusion channel comprises supplying a population of cells to the finite volume diffusion channel, and wherein supplying a reactive constituent comprises supplying an ionic species to the finite volume diffusion channel.

12. (Original) The method of claim 8, wherein supplying a bio/chemical species to the diffusion channel comprises supplying a population of cells to the finite volume diffusion channel, and wherein supplying a reactive constituent comprises supplying small molecules intended for therapeutic purposes to the finite volume diffusion channel.

13. (Original) The method of claim 8, wherein measuring the diffusion rate of the bio/chemical species comprises:

- positioning first and second measurement probes at respective first and second locations along the finite volume diffusion channel; and
- measuring an optical or electrical parameter at the first and second measurement probes; and
- detecting a difference in the measured optical or electrical parameter.

Claims 14-27 are canceled without prejudice.